

CLAIMS

- 1 1. A method for processing an electronic document, wherein the document
2 comprises a tree structure comprising branches comprising a plurality of nodes, the
3 method comprising steps of:
4 receiving a query comprising search criteria and wherein the search criteria
5 comprise a set of constraints that specify forward or backward relations between
6 nodes;
7 receiving a context node in the document with respect to which the search
8 criteria are applied;
9 receiving at least a portion of a document;
10 modifying the search criteria to introduce a constraint matching the context
11 node into the set of constraints;
12 processing the document in a streaming manner and using the modified search
13 criteria; and
14 locating one or more nodes that satisfy the modified search criteria.
- 1 2. The method of claim 1, wherein the document is stored in memory.
- 1 3. The method of claim 1, wherein the document is an XML document.
- 1 4. The method of claim 1, wherein the document is a streaming document.

- 1 5. The method of claim 1 comprising modifying the search criteria such that
2 constraints specifying a backward relation may be reformulated into forward
3 constraints.
- 1 6. The method of claim 1 wherein the query comprises an XPath expression.
- 1 7. The method of claim 1 wherein the query is represented by a modified directed
2 acyclic graph comprising a node "Ctxt" which only matches the context node.
- 1 8. The method of claim 1 further comprising reordering the tree structure
2 representing the document to be searched such that the number of nodes traversed is
3 minimized.
- 1 9. The method of claim 1 further comprising
2 reordering the tree structure representing the document to be searched such that
3 the context node is traversed as early as possible.
4
- 5 10. The method of claim 1 further comprising
6 reordering the tree structure representing the document to be searched such that
7 the context node appears in the path of the tree that is traversed first.

1 11. An information processing system comprising memory storing the following
2 instructions:
3 receiving a query comprising search criteria and wherein the search
4 criteria comprise a set of constraints that specify forward or backward
5 relations between nodes;
6 receiving a context node in the document with respect to which the
7 search criteria are applied;
8 receiving at least a portion of a document;
9 modifying the search criteria to introduce a constraint matching the
10 context node into the set of constraints;
11 processing the document in a streaming manner and using the modified
12 search criteria; and
13 locating one or more nodes that satisfy the modified search criteria; and
14 memory for storing the above instructions; and
15 a processor for performing the instructions.

1 12. The information processing system of claim 11 wherein the memory further
2 comprises an instruction for modifying the search criteria such that constraints
3 specifying a backward relation may be reformulated into constraints specifying a
4 forward relation.

1 13. The information processing system of claim 11 wherein the document is stored
2 in memory.

1 14. The information processing system of claim 11 wherein the document is an
2 XML document.

1 15. The information processing system of claim 11 wherein the document is a
2 streaming document.

1 16. The information processing system of claim 11 comprising logic for modifying
2 the search criteria such that constraints specifying a backward relation may be
3 reformulated into forward constraints.

1 17. The information processing system of claim 11 wherein the query comprises
2 an XPath expression.

1 18. The information processing system of claim 11 wherein the query is
2 represented by a modified directed acyclic graph comprising a node "Ctxt" which only
3 matches the context node.

1 19. The information processing system of claim 11 further comprising logic for
2 reordering the tree structure representing the document to be searched such that the
3 number of nodes traversed is minimized.

1 20. The information processing system of claim 11 further comprising logic for
2 reordering the tree structure representing the document to be searched such that the
3 context node is traversed as early as possible.

1 21. A computer executable medium comprising program instructions for:
2 receiving a query comprising search criteria and wherein the search
3 criteria comprise a set of constraints that specify forward or backward relations
4 between nodes;
5 receiving a context node in the document with respect to which the search
6 criteria are applied;
7 receiving at least a portion of a document;
8 modifying the search criteria such to introduce a constraint matching the
9 context node into the set of constraints;
10 processing the document in a streaming manner and using the modified search
11 criteria; and
12 locating one or more nodes that satisfy the modified search criteria.